What is claimed is:

1. Carbon powder having a primary particle size of 100 nm or less and an X-ray crystallite plane spacing C_0 of less than 0.680 nm.

2. The carbon powder as claimed in claim 1, which has a primary particle size of 100 nm or less and an X-ray crystallite plane spacing C_0 of 0.6730 nm or less.

3. The carbon powder as claimed in claim 1 or 2, which is carbon black.

4. The carbon powder as claimed in any one of claims 1 to 3, which shows a volume resistivity of 0.1 Ω·cm or less in the pressurized state under a pressure of 2 MPa.

5. The carbon powder as claimed in any one of claims 1 to 4, wherein boron content is in a range of 0.001 to 5 % by mass.

6. The carbon powder as claimed in claim 5, wherein boron content is in a range of 0.1 to 5 % by mass.

7. A method for producing the carbon powder as claimed in any one of claims 1 to 6, comprising adding boron carbide (B_4C) to carbon black in an amount of 0.01 to 7% by mass in terms

of boron and heat-treating the mixture at 2,500°C or more in a non-oxidative atmosphere.

8. The method for producing the carbon powder as claimed in claim 7, comprising adding boron carbide (B_4C) to carbon black in an amount of 0.5 to 7% by mass in terms of boron.

9. The method for producing the carbon powder as claimed in claim 7 or 8, wherein the carbon black is at least one kind selected from the group consisting of oil furnace black, acetylene black, thermal black, and channel black.

10. An electrically conducting carbon composite powder for supporting a catalyst, comprising carbon powder as claimed in any one of claims 1 to 6, having mixed therewith fibrous carbon.

11. The electrically conducting carbon composite powder for supporting a catalyst as claimed in claim 10, wherein the fibrous carbon is vapor grown carbon fiber.

12. The electrically conducting carbon composite powder for supporting a catalyst as claimed in claim 11, wherein from 1 to 7% by mass of vapor grown carbon fiber is mixed with carbon powder.

13. The electrically conducting carbon composite powder for supporting a catalyst as claimed in any one of claims 10 to 12, wherein the carbon powder is heat-treated at a temperature of 2,500°C or more.

14. The electrically conducting carbon composite powder for supporting a catalyst as claimed in any one of claims 11 to 13, wherein the vapor grown carbon fiber is graphitized at a temperature of 2,500°C or more and boron content in the fiber is in a range of 0.001 to 5 % by mass.

15. The electrically conducting carbon composite powder for supporting a catalyst as claimed in claim 14, wherein the boron content in the vapor grown carbon fiber is in a range of 0.1 to 5 % by mass.

16. A catalyst for polymer electrolyte fuel battery, primarily comprising platinum or a platinum alloy and the carbon powder as claimed in any one of claims 1 to 6 for supporting the catalyst.

17. A catalyst for polymer electrolyte fuel battery, primarily comprising platinum or a platinum alloy and the carbon composite powder as claimed in any one of claims 10 to 15 for supporting the catalyst.

18. A polymer electrolyte fuel battery cell using the catalyst as claimed in claim 16 or 17 for anode catalyst layer and/or cathode catalyst layer.

19. A solid polymer electrode fuel battery comprising at least more than two of the stacked polymer electrolyte fuel battery cell as claimed in claim 18.

20. A polymer electrolyte fuel battery using the catalyst as claimed in claim 16 or 17 for anode and/or cathode electrode.